Light SPEAR™

Electronic Attack & Self-Protection System for Airborne, Ground & Maritime Platforms

Elbit Systems™
ISTAR & EW - Elisra

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Light SPEAR – Part of the SPEAR Family

Overview

The modern battlefield is fraught with new challenges that must be met by the most advanced Spectrum Warfare Solutions. The growing demand to operate and collect accurate intelligence in Highly Hostile Environments has led to the development of the Light SPEAR solution, a member of the SPEAR family.

Utilizing Elbit Systems EW and SIGINT - Elisra's operational experience and cutting edge technology, the SPEAR family is based on a number of unified digital ELINT & ECM systems, each applicable to a set of operational requirements and platform constraints.

Light SPEAR – an ESM & ECM solution for airborne, ground and maritime platforms – is a compact EW system based on multiple DRFM channels, working in parallel and covering a wide spectrum. The system's 3U VPX standard allows simple integration with an array of transmitters and platforms – and its low Size, Weight and Power (SWaP) consumption makes it an ideal EW system for multiple operational platforms.

Main Capabilities

EW Functions

- ECM – Electronic Countermeasures
- RWR – Advanced Digital Radar Warning Receiver
- EWC – EW Suite Controller
- CFDS – Chaff/Flare Dispensing System

Advanced Capabilities

- ESM/ELINT – Electronic Support Measures and Electronic Intelligence
- Accurate Direction Finding on Received Signals
- Spectral Threat Geo-Location
- Net-Centric EW Applications

Key Features and Advantages

- Digital Receiver and RF Memory (DRFM) embedded into a single compact LRU
- Supports various antennas and transmitters, including Solid State Phased Array transmitters
- Incorporates Commercial Off-the-Shelf (COTS) components

ECM – Electronic Countermeasures

- Cutting edge protection that jams to suppress and defeat enemy air defense and communication systems
- T/R configuration – integrated with a T/R (Transmitter/ Receiver), allows basic self-protection capabilities
- SSPA configuration – Solid State Phased Array, enables high power narrow beam-steered transmitters on a wide spectrum range

RWR – Advanced Digital Radar Warning Receivers

- Based on multiple DRFM and RF Surface-Mount Technology (SMT) allows reduction of SWaP and cooling demands
- Full band coverage (Low band to 18 GHz, optional MMW)
- High sensitivity and Probability of Intercept, with full band coverage
- Provision for Millimetre-Wave Receiver technology

ELINT – Electronic Intelligence & Support Measures (ESM)

- Search, intercept, identify and locate transmitting elements covering a wide spectrum
- Dual receiving channels supporting multiple optional location techniques (TOA, DD)
- Supports data links and operator interface to fully utilize and operate the system in a real-time, dense theatre
- High Probability of Intercept with multi-channel DRFM working in parallel on full band coverage

EWC – EW suite Controller

- Generic controller operational in a wide range of military applications, from ground and marine ECM applications to a unified aerial EW suite
- Digital Receiver and RF Memory (DRFM) embedded into a single compact LRU

CFDS – Chaff/Flare Dispensing System

- Modes of operation: Standby, Manual, Semi-Automatic, Automatic
- Interface to RWR for Automatic / Semi-Automatic Dispensing

Planning, Loading and Debriefing Tool

- Advanced color displays on Head-Up Displays (HUD), Tactical Situation Displays (TSD), and Helmet-Mounted Systems (HMS)
- Training tools to simulate operational environment according to customer specifications for full training of crew on EW system
- Loading and debriefing tool for operational and training purposes

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Key Strengths

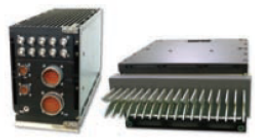
- Cutting edge digital technology with reduced Size, Weight, and Power (SWaP) consumption
- Unified solution – one central processing LRU that easily integrates with a wide array of antennas and transmitters
- Relies mostly on COTS elements, creating a cost-effective, easily tailored and upgraded solution, and a reduced Life Cycle Cost (LCC)

Technical Specifications

Audio	Voice messages and audio tone alerts
Display	MFCD / dedicated color display unit
Interfaces	1553B Mux Bus (X2), ARINC 429 (X1), RS422, LAN (X2), Blanking Center (In/Out Blanking), Discrete I/Os
Voltage Supply	28 Vdc (MIL-STD-704) 115 Vac
Environmental Conditions	MIL-HDBK-5400, Class II qualified

Physical Characteristics

Component	UEWS	Light Configuration		Advanced Configuration		Dispensers
		T/R Low Band	T/R High Band	SSPA Low Band	SSPA High Band	
Weight (kg)	11	0.5	0.25	13	13	2.8
Length (mm)	345	120	100	300	270	216
Width (mm)	127	105	95	200	240	170
Height (mm)	195	23	13	240	135	272
Power Dissipation (W)	250	100	45	900	900	3



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ew-elisra.info@elbitsystems.com
www.elbitsystems.com

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